

IN THE CLAIMS:

The text of all pending claims, (including withdrawn claims) is set forth below. Cancelled and not entered claims are indicated with claim number and status only. The claims as listed below show added text with underlining and deleted text with ~~strikethrough~~. The status of each claim is indicated with one of (original), (currently amended), (cancelled), (withdrawn), (new), (previously presented), or (not entered).

1. (previously presented) A robot system, comprising:
a movable arm including a plurality of links and a wrist connected by joints and controlled by a robot controller having a software processing function; and
a cutting tool unit mounted on said wrist at a distal end of said movable arm, having a cutting effecting end point biased with a radial offset with respect to a final rotational axis of said wrist and directed to said final rotational axis, and a variable axis varying a position or a direction of said effecting end with respect to said final rotational axis of said wrist,
wherein only said final rotational axis of the movable arm is selectively rotated when performing a machining operation on a workpiece.
2. (canceled)
3. (canceled)
4. (previously presented) A robot system according to claim 1, wherein said variable axis includes a linear axis.
5. (previously presented) A robot system according to claim 4, wherein said linear axis allows said effecting end to move perpendicularly or parallel to said final rotational axis.
6. (previously presented) A robot system according to claim 1, wherein said variable axis includes a rotary axis.
7. (previously presented) A robot system according to claim 1, wherein a linear axis and a rotary axis are provided, each functioning as said variable axis.
8. (previously presented) A robot system comprising:

a movable arm including a plurality of links connected by joints and controlled by a robot controller having a software processing function; and

a tool unit mounted on a distal end of said movable arm, having an additional rotation axis biased with respect to a final rotational axis of said movable arm and an effecting end biased with respect to said additional rotation axis and directed to said additional rotation axis, and a variable axis varying a position or a direction of the effecting end with respect to the final rotational axis of said moveable arm.

9. (previously presented) A method of machining a cylindrical workpiece with a robot system comprising a movable arm including a plurality of links and a wrist connected by joints and controlled by a robot controller having a software processing function, a cutting tool unit mounted on said wrist at a distal end of said movable arm, and having a cutting effecting end point biased with a radial offset with respect to a final rotational axis of said wrist and directed to said final rotational axis, and a variable axis varying a position or a direction of said cutting effecting end with respect to said final rotational axis of said wrist, said method comprising:

- (a) arranging the workpiece so that a central axis of the workpiece is aligned with the final rotational axis of said wrist; and
- (b) selectively rotating only said final rotational axis to perform cutting machining on the workpiece.

10. (cancelled)

11. (canceled)

12. (previously presented) A method of machining a cylindrical workpiece according to claim 9, wherein said variable axis includes a linear axis.

13. (previously presented) A method of machining a cylindrical workpiece according to claim 12, wherein said linear axis allows said effecting end to move perpendicularly or parallel to said final rotational axis.

14. (previously presented) A method of machining a cylindrical workpiece according to claim 9, wherein said variable axis includes a rotary axis.

15. (previously presented) A method of machining a cylindrical workpiece according to claim 9, wherein a linear axis and a rotary axis are provided, each functioning as said variable axis.

16. (previously presented) A method of machining a pipe-like workpiece with a robot system comprising a movable arm including a plurality of links connected by joints and controlled by a robot controller having a software processing function, and a tool unit mounted on a distal end of said movable arm and having an effecting end and a variable axis for varying a position or a direction of said effecting end with respect to a final rotational axis of said movable arm, said method comprising the steps of:

(a) arranging the workpiece so that a central axis of the workpiece is aligned with the final rotational axis of said movable arm; and

(b) rotating said final rotational axis and driving said variable axis in synchronism with the rotation of said final rotational axis to perform a saddle-like cutting or forming a hole on the workpiece.

17. (canceled)

18. (canceled)

19. (canceled)